



Hazard Management System Status

NS3/Safety & Mission Assurance
JSC White Sands Test Facility
February 28, 2007



Outline

- The Team
- Background
- System Objective & Business Model
- User Group Activity Summary
- Benefits of HMS
- FY07 Forecast
- HMS Demonstration - HGL



JSC WSTF & HGL, Inc. Team

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- **David Loyd**
 - JSC Safety & Test Ops Chief, Project Coordinator
- **Don Hall**
 - WSTF S&MA Safety, Hazard Analysis and Safety Reqmts
- **Denzil Burnam**
 - WSTF FOSC Safety, User/Data Consultant
- **Bruce Rappaport**
 - HGL, Senior Director, Operations
- **Ted Lillys**
 - HGL, Project Manager
- **Gerald Burnette**
 - HGL, Software Developer



Background

- **Pervasive and comprehensive requirements driving hazard management from multiple perspectives**
 - Hazardous conditions noted in inspections
 - Job Hazard Analysis focus on individual behaviors
 - Process Hazard Analysis focus on systems
 - Worksite Analysis focus on environmental conditions and potential exposures
- **Multiple requirements resulting in overlap in analysis techniques and results, driving inefficiencies and confusion**
- **Greater emphasis on employee involvement driving need for quick, concise access to, and communication of, relevant hazards and associated controls**
- **Hunger for real time hazard assessment**

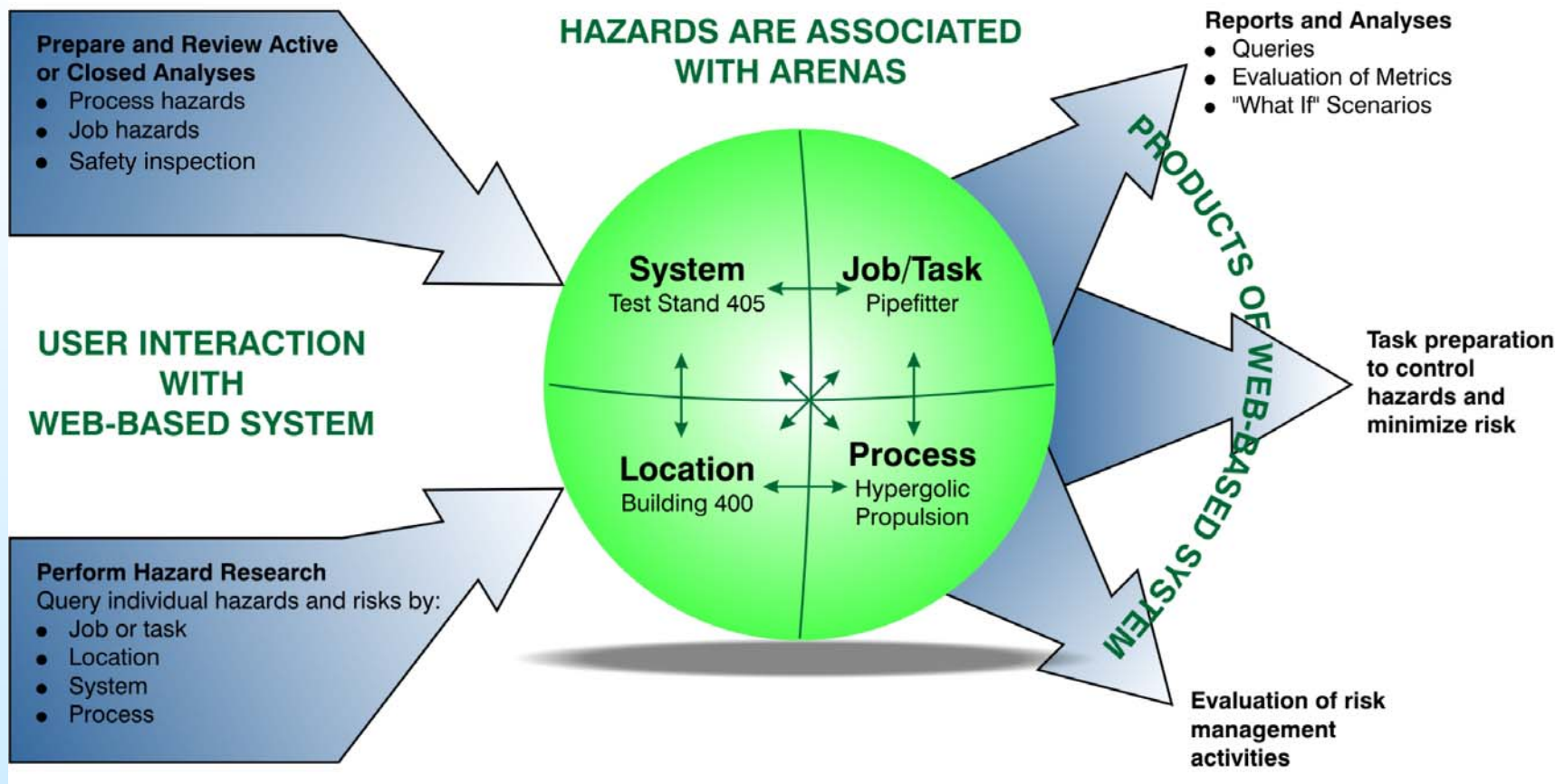


System Objective

- **Need an information system that sorts individually identified hazards independent of the activity, technique, or tool used, and manages the hazard, it's analysis, control, and communication.**



Business Model





User Group Activity Summary

- **HGL subcontracted to create Alpha HMS**
 - System requirements in SOW (June 2004)
- **Built Alpha HMS based on WSTF document extraction**
 - HA, PHA, JHA, SIMS
 - Implemented WSTF User Group to evaluate Alpha HMS (February 2005)
- **WSTF Feedback provided to HGL**
 - HGL implemented changes (on-going)
- **HGL drafted Final Beta Version Web-based System Design Document (October 2006)**
 - Sent document to NASA User Group for comments
 - Collected comments and feedback from WSTF & MSFC
- **HGL developing Beta HMS**
 - Solicit more NASA User Group involvement



Benefits of HMS

- Facilitate “build” of hazards analyses based on pick lists of standard hazard categories and allowing for tailored entries
 - Hazard Analyses
 - Process Hazard Analysis
 - Job Hazard Analysis
 - Inspection/Survey Report
- ❖ Recommend controls citing hazard reduction precedence
- Assign actionees for control and schedule suspense targets
- ❖ Track hazard analysis control status based on application sort -- facility, system, location, affected employee, etc.
- E-mail notification features for control input, action response, and scheduled maintenance (PSM)
- Electronic approval authorities for reports
- Adaptable to any other NASA facility
- Internet accessible



FY07 Forecast

- **Beta Version Development (HGL)**
 - Update DB and User Interface (UI)
 - Update Reporting Modules
 - Develop Electronic Approval
 - Update E-mail notification
 - Develop connections to other DB
 - 508 Compliance Review
- **Develop User's Guide**
- **Develop Online Help**
- **Tentative Beta Version Completion-June 07**
- **Tentative Final Beta Version Demonstration @ HQ-July 07**



Hazard Management System Beta Demonstration



Areas of Concern (AOC)

- **WSTF & MSFC identified the following AOC**
 - **User Interface**
 - Document authoring
 - Hazard Entry
 - **Establishing Context of Hazard Queries**
 - **Historical Data Needs**
 - Need the most current HA for each system (at least)
 - **Safety Assessment Driver**
 - Risk Indicator which then dictates which Safety Assessment are warranted
 - **Hazard Analysis nomenclature**
 - Source, Trigger, Result vs. Cause, Impact, Control



Documentation of Hazards & Risks

- **NPR 8715.3A**
 - New advanced concepts in system safety
 - Core Requirements for System Safety Processes (2.5)
 - System Safety Modeling (2.5.2)
- **HMS is a tool for**
 - SMA Directors & System Safety Managers
 - System Safety Engineers
 - Program/Project Managers
 - Health, Safety, and Environmental Inspectors
- **Hazards and their risks are traceable in the HMS**
 - Initial identification of their risk through their resolution
- **Hazard Analysis**
 - New Hazard Details
 - Hazard Category
 - Post Control RAC (Specifically for “Closed” Status)
 - PPE & Training
 - Resolution Type (Precedence)
- **Job Hazard Analysis**
 - Focused Job Hazards & Common Hazards



Transferability to other Centers

- What are the transferability issues?
- Does the business model work for other Centers?
- What is missing?
- What are the costs of transfer? Data needs? Data Formats? Hardware, software needs? Costs associated with these items?
- Speed of transfer?
- What is more appropriate, a Center-specific implementation or a central implementation? Is a NASA-wide implementation feasible? Is it useful?